AMENDMENTS TO THE DRAWINGS:

Appended hereto are four replacement drawing sheets, one sheet each for Figures 3, 8, 14 and 18. The changes made to these replacement sheets are as follows:

Figures 3 and 18: as associated with reference number 206, the term "n-TYPE HANDLE WAFER" is replaced with the term "BURIED OXIDE (BOX)", for consistency with all other figures;

Figure 8: reference number 207 is added, consistent with Figure 4; and

Figure 14: reference number 244d is added, consistent with other portions 244(a)-(c) of that same layer as detailed at paragraph [0034] of the written description.

No new matter is added.

Remarks/Arguments:

Claims 14, 17 and 22-32 are pending in this application. This Amendment cancels claims 1-13 in response to the previous restriction requirement, and further cancels claims 15-16 and 18-21. Claims 14, 17 and 22 are amended, and claims 23-32 are added. In the Office Action dated July 19th, 2005, the Examiner rejected claims 14-22 under 35 USC 103(a) as obvious over the combination of Dennard (US 6,812,527) and Kim (US 6,417,089).

The written description is amended so that paragraph [0010] as replaced more closely tracks the amendments made herein to claim 14, and added paragraph [0010A] tracks elements of added claim 30.

Four replacement drawing sheets are submitted to make minor corrections, as detailed at page 3 of this paper. Annotated sheets are not seen as required because the changes merely add a reference character in Figures 8 and 14, and change descriptive text for layer 206 in Figures 3 and 18. See MPEP 608.02(v). No new matter is added.

Claim 14 is amended to replace the former terms "wafer portion" and "bonding material portion" with the respective terms "intrinsic active layer" and "contact layer" to more closely track terminology of the written description and the illustrated layers. Claim 14 is also amended to recite the substrate as a separate "providing" step to better set off characteristics of the substrate. The preamble to claim 14 is changed to more closely reflect the title. None of the above are done for reasons related to patentability as none are seen as relevant to the claim rejections. Support for these changes, as well as the relative dispositions of the layers and conductive terminals, may be found at paragraphs [0017], [0018] and [0038]. The first and second electrical conductivity type added in claim 14 and new claims 26 and 30-31 are supported at paragraphs [0018] and [0026]. Support for the change to claim 17 may be found at paragraph [0015] (integrated field plate connection). The dependency of claim 22 is changed.

New claims 23-32 are supported as follows: claims 23-24 at paragraphs [0015] (hybridize) and [0041] (overglass/conformal coating on metal layer 204 after removal of layer 206); claim 25 at paragraphs [0040] and [0041]; claims 26, 29 and 31 at paragraphs [0018] (n-type and thickness) and [0026] (p-type); claims 27 and 32 are product by process claims;

and claim 28 at paragraphs [0015] and [0018]. Claim 30 is a new independent method claim reciting elements of other claims. The array and plurality elements of claim 30 are supported by the drawings, which show an exemplary number of two PIN detectors sharing a common (n-type) contact layer.

The Applicant makes these changes to particularly claim the invention as a PIN detector device, which was already previously recited in the preamble of claim 14. The cited art to Dennard is to a FET device, and the cited art to Kim is to forming a solder bump. The amended claims are seen to better distinguish over the classes of semiconductor devices recited in those references. None are seen to be a PIN detector device as in the preambles of claims 14 and 30. None are seen to recite the particular substrate layers and the processing thereon as recited in the amended and added claims.

The Office Action rejection of independent claim 14 cites only to Dennard at Figs. 7 and 8 and associated text. Related Fig. 6 of Dennard describes that two distinct wafers (one wafer with buried oxide layer 12, trenches 20 and 22 and doped back-gate region 24; and another wafer 26) are thermally bonded along an oxide layer 28. Dennard teaches at Figs. 7-8 and associated text that only a portion of the second SOI wafer 26 is removed; those portions described as the Si substrate 100 and the buried oxide region 110. Following removal as shown in Figure 8, both the lightly doped Si containing region 120 of the second SOI wafer, and the oxide layer 28 along which the two separate wafers were bonded, each remain attached to the original buried oxide layer 12 for further processing. Dennard represents quite a different approach than that of the present invention. Claim 14 as amended is seen to distinguish over Dennard in multiple respects. New claim 30 recites similar distinguishing elements.

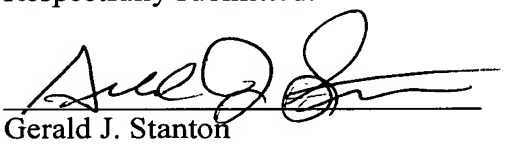
The amended independent claims recite structure as well as method elements not seen as disclosed or taught/suggested by any of the cited references, alone or in combination. Dennard is not seen to process a substrate such as that recited in claim 14, which recites a contact layer having an electrical conductivity of a first type and a material introduced into the active layer that has an electrical conductivity of a second type. Claim 14 further recites that the material is separated from the contact layer by at least a portion of the

intrinsic active layer. None of these elements are seen within the cited references, or obvious modifications to them.

As recited at paragraph [0017] of the written description, an advantage of the present invention is that the field plate (the electrically conductive n-type contact layer 206) is provided at the wafer level. Nowhere in Dennard is there seen the particular p-intrinsic-n layering recited in claims 14 and 30. This includes Dennard's Figure 7, which was cited in the Office Action.

For the above reasons as they relate to the amended claims, the Applicant respectfully requests that the Examiner review the cited art and rejections in light of the above remarks, and pass each of claims 14, 17 and 22-32 to issue. The undersigned representative welcomes the opportunity to resolve any matters that may remain, formal or otherwise, via teleconference at the Examiner's discretion.

Respectfully submitted:



November 10, 2005
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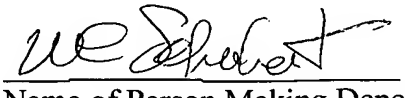

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